FirstNet®

JUNE 2016

Information for Kansas' Public Safety Practitioner

About FirstNet

The Middle Class Tax Relief and Job Creation Act of 2012 (Act) created the First Responder Network Authority (FirstNet) after years of Congressional advocacy by public safety. The law gives FirstNet the mission to ensure the building, deployment, and operation of the first high-speed, nationwide wireless broadband network with spectrum dedicated to public safety. FirstNet will provide a single, interoperable platform for emergency and daily public safety communications. This broadband network will fulfill a fundamental need of the public safety community as well as the last remaining recommendation of the 9/11 Commission. FirstNet will bring 21st century tools to tens of thousands of organizations that respond to emergencies at the local, state/territory, tribal and federal levels.

The Consultation Process with Kansas

In June 2015, FirstNet held its initial consultation meeting in Kansas with 60 state and local government and public safety professionals in attendance. Unlike many states west of the Mississippi River, Kansas does not have large unpopulated areas of mountains or wilderness. The meeting primarily focused on the state's outreach, including data collection from more than 1,400 public safety entities to ensure Kansas' needs are clearly identified. The Kansas Data Access and Support Center (DASC) has been mapping where broadband service currently exists and where Kansas' broadband needs are diverse. In Stanton County near the Colorado border, less than 10 percent of the population has access to high speed broadband networks. Coverage is excellent in Wyandotte County, which is where Kansas City is located. Additionally, the state presented several use cases that provided more information about Kansas' composition and coverage needs.

Conversations with states like Kansas are valuable in understanding how FirstNet can meet public safety's diverse needs across the country. Going forward, FirstNet will continue its outreach efforts. The state's public safety communities as well as state and local officials are enthusiastic about

the network's possibilities. We look forward to continuing our open dialogue and collaboration as we move towards network deployment.

FirstNet Business Plan

The FirstNet network will provide quality of service, priority and preemption capabilities to public safety entities (PSEs). FirstNet now has a full 20 megahertz (MHz) of nationwide spectrum with which to deploy the FirstNet network. To cover part of the costs of building and maintaining the network, it is expected that PSE users will be charged subscription fees as per the Act. Additional revenues necessary to cover the full cost of the network will be generated from the commercial use of excess spectrum capacity under covered leasing agreements as authorized by the Act. All revenue generated from these fees must be reinvested into the nationwide network to be used for constructing, maintaining, operating, or improving the network. No revenue can be redistributed in the state for any other uses. Revenues generated in states assuming responsibility for the Radio Access Network (RAN) in excess of the reasonable costs of the RAN deployment and operation in those respective states must be reinvested back into the nationwide network. Costs of network usage, devices and services will be determined following award of a contract.

Network Policies

Policies addressing the management, operation, and use of the network including, but not limited to, cybersecurity, quality of service, priority and preemption, will be established and administered by FirstNet throughout the lifecycle of the network. FirstNet is collecting information from local, state/territory, tribal, and federal agencies throughout 2016 to inform and adapt these policies to current/standard operating procedures and public safety industry best practices. Examples include:

- **Cybersecurity:** The FirstNet network cybersecurity solution will include a dedicated cybersecurity program that considers all source threats; constructs a dynamic threat profile; generates cybersecurity architecture; builds in proactive forensics; and establishes incident response capabilities that ensure the ability to operate and deliver crucial services as needed during a national, state, territorial, or local incident. The solution will deploy an ecosystem-wide approach to cybersecurity that includes the network, devices, and applications. The state/territory's role in cybersecurity will be to ensure that PSE users are compliant with usage policies.
- Quality of Service, Priority and Preemption (QPP): FirstNet requested proposals from offerors that shall ensure public safety users can access network services during emergencies in spite of network congestion, including a detailed description of the systems, interfaces, and settings of its QPP solution for the FirstNet network. In addition, FirstNet has consulted with the Public Safety

Advisory Committee (PSAC) and will be consulting with state identified consultation task teams (CTTs) on our conceptual QPP framework for the various states of the network.

- **Local control:** This means different capabilities to different constituencies. The FirstNet CTO team has worked to synthesize a variety of sources on the subject into the recently released Request for Proposals (RFP). The framework sets the stage for the next phase of our efforts when FirstNet, the Public Safety Communications Research (PSCR) program, and PSAC will investigate specific areas of local control and develop answers to key questions in preparation for working with the Awardee.

Coverage Objectives

As a result of FirstNet's data collection effort in 2015, information and data were gathered from various national databases and state/territory, local, and tribal agency inputs to inform each state/territory's coverage objectives. This was a collaborative and data-driven exercise for states and territories to identify public safety's needs for coverage. In our enabling legislation, measures were put in place to ensure the FirstNet network covered rural areas. Recognizing that important need, FirstNet included benchmarks in the RFP for substantial rural deployments for each phase of network deployment as well as ensuring rural partnerships are included. Although the opportunity to leverage Long-Term Evolution (LTE) technology is high in all geographies in which public safety operates within a state/territory, terrestrial coverage and deployment will be practically constrained by fiscal and operational factors. It is for this reason that states and territories performed the data collection and were asked to prioritize their coverage objectives, and it is also why the RFP seeks to leverage synergies with existing LTE infrastructure and services. In Kansas, the solutions may not always be terrestrial and will be dependent on the future partner's proposal. In some cases, there may be temporary on-demand aerial or vehicular solutions deployed to provide coverage and capacity when needed.

Infrastructure and Security

CTTs are state and territory task teams formed around subjects on which FirstNet is seeking further stakeholder input. Teams are topic-specific and meet over a short period of time. The first CTT will be on the conceptual QPP framework FirstNet developed with the support of the PSAC. It will provide a formal opportunity for stakeholders with operational and technical expertise to provide meaningful input to inform FirstNet network policies and operations on QPP. FirstNet recommends that state and territory Single Points of Contact (SPOCs) select a wide range of knowledgeable and dedicated stakeholders as QPP CTT members.

Interoperability

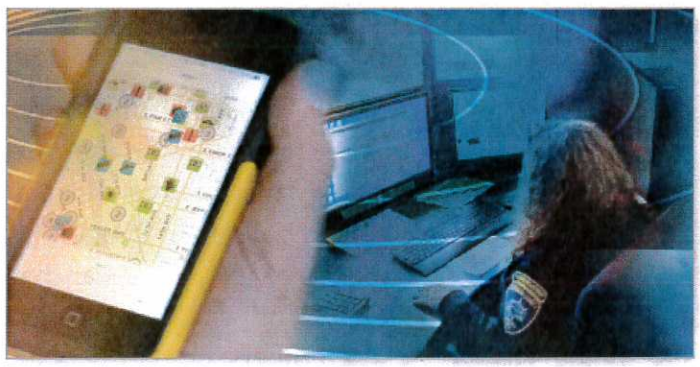
FirstNet network devices will be inherently interoperable and able to communicate, exchange, and receive Internet Protocol (IP) data using FirstNet's dedicated 700 MHz spectrum, also referred to as Band 14. Upload/Download speeds on a network device will be dependent upon the deployed architecture and LTE coverage footprint. FirstNet recognizes that

application compatibility and data exchange standards for interoperability need to be closely monitored as they continue to develop. All public safety users who leverage the FirstNet network will be using the same spectrum, and all state RANs, whether in an opt-in or opt-out deployment (more information on that below), will connect to the FirstNet Core. These two factors allow for nationwide interoperability of the FirstNet network.

Bring Your Own Device (BYOD)

Throughout the course of our consultation and outreach efforts, including feedback on the Special Notice and Draft RFP documents, many of our stakeholders have asked: "Will FirstNet allow personal devices on the FirstNet network?" Recognizing that the public safety user community will demand support for personal devices on the FirstNet network, FirstNet is taking steps to develop and implement an effective BYOD policy. The BYOD policy must provide adequate security and control of the device, while still providing an acceptable user experience when accessing the FirstNet network. It must also operate in real time to analyze BYOD access and identify anomalies. To address these and other device scenarios, FirstNet is planning to support personal devices on the FirstNet network through a BYOD policy that is being developed as part of the overall network architecture.

Future Build Out & NextGen-911



The FirstNet network design and phased deployment plan will be determined following award of a contract. At this point in time, future build out scenarios beyond full operational capability of the network are not measurable and have not been contemplated. FirstNet is tasked with promoting the integration of the network with Public Safety Answering Points (PSAPs) or their equivalent. Although it has not been determined how PSAP network integration will take place, it remains a topic for further discussion and was an identified objective in our RFP.

The "Internet of Things"

The "Internet of Things" holds enormous potential for communities across the United States. Connecting data-rich items, such as computing devices, machines, and grids stand to improve efficiencies and enhance productivity in the public and private sectors. This concept also holds much promise for our nation's first responders, who often operate in a mobile environment and can benefit from having real-time, actionable information at their fingertips when they are responding to an incident. However, despite advancements in consumer-based technologies, today's citizens with a smartphone may

have more advanced communication capabilities than many police officers or firefighters have on their work-issued devices. That is a key driver behind the creation of FirstNet.

Once operational, the FirstNet network stands to transform the way first responders communicate, providing them with access to high-speed voice, video, and data over a prioritized, reliable, and hardened mobile connection. Importantly, FirstNet's network will be interoperable across disciplines and state lines, addressing a long-time communications challenge affecting first responders from different jurisdictions and agencies.

Further, just as more items are being connected through the "Internet of Things," the FirstNet network stands to link more first responder data sources, such as their gear, emergency vehicles, fingerprint scanners, databases, and more. This will enable real-time data sharing and processing of the information for instantaneous viewing and improved situational awareness in the field. This may be considered as the "Internet of First Responder Things (IoFRT)."

The possibilities are endless for public safety personnel with access to a reliable and prioritized broadband network. The FirstNet network will be a force multiplier, bringing state-of-the art technology to law enforcement officers, firefighters and paramedics across the country.

Governor's Decision

FirstNet's objective through consultation is to work together to deliver the best plan possible for Kansas. To achieve that, we want to identify and incorporate the state's needs while leveraging FirstNet's nationwide buying power and economies of scale benefits. FirstNet's goal is to provide a comprehensive State Plan strategy – minimizing time to deployment and cost for each state/territory as well as ensuring interoperability of the FirstNet network. The Governor may "opt out" of FirstNet's plan for the RAN deployment, but the state/territory will then assume responsibility for deployment, operation, and maintenance of the State's own RAN and be required to get FCC and NTIA approval, as well as negotiate a spectrum lease with FirstNet.

As prescribed by the Act, this decision happens at the state/territory level, and there is no carve out for counties, cities, regions or tribes within a state/territory boundary. The state/territory will also be responsible for related maintenance and future upgrades should they choose to "opt out." This decision does not commit PSE users to using the FirstNet service. For more information about the Opt-in or Opt-out decision, please refer to the FirstNet document titled, "Key Factors to Consider for the Governor to Opt-In or Opt-Out of the FirstNet Plan."

Social Media

https://www.linkedin.com/company/first-responder-network-authority-firstnet-

https://twitter.com/FirstNetGov

https://www.youtube.com/user/FirstNetGov

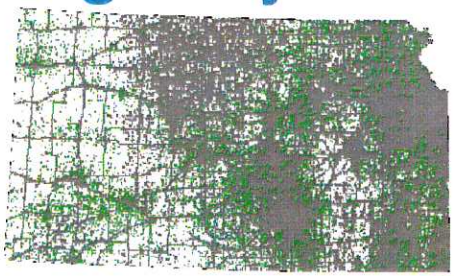
https://www.flickr.com/photos/firstnetgov/albums

https://plus.google.com/+FirstnetGov

https://firstnetgov.tumblr.com/

Data Collection Categories

Coverage Objectives



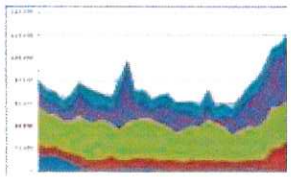
- Coverage
- Phased Deployment

Users and Operations

- Public Safety Entity Info
- Devices
- Operational Areas

Kansas

- Applications
- Data Usage

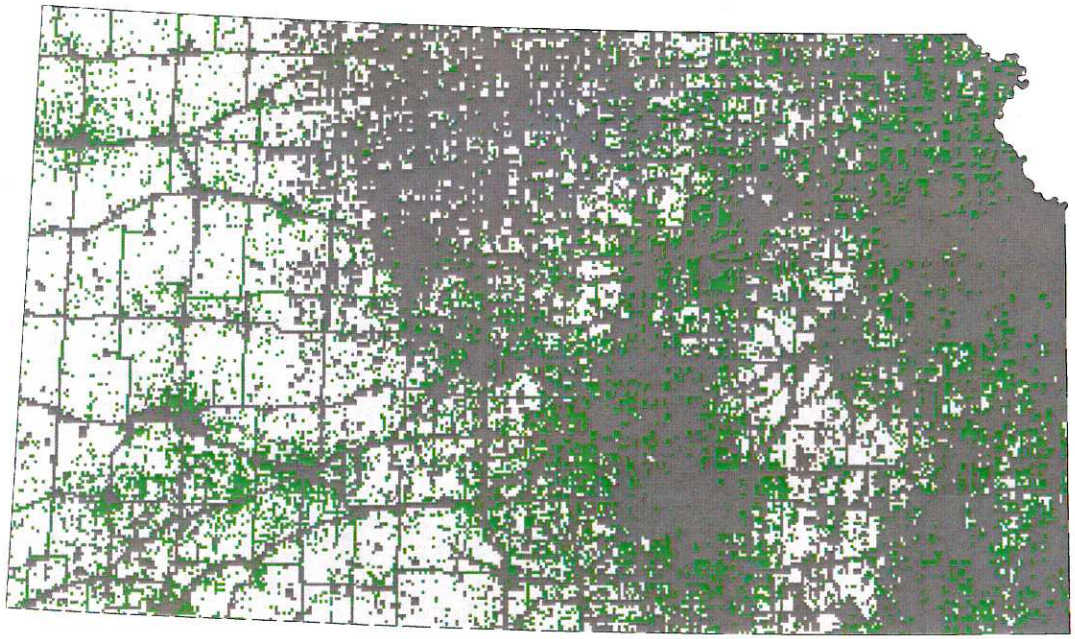


Capacity

- Current Service
- Procurement Vehicles
- Service Plans

Current Service

Coverage Objectives



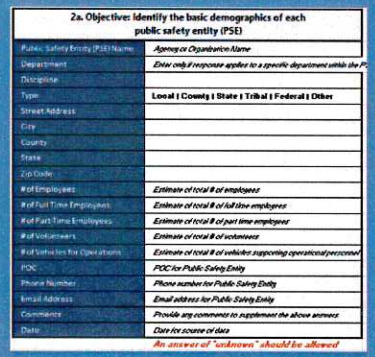
Coverage Objectives

- FirstNet Baseline
- Federal Input
- State Input
  - Unique State/Tribal Datasets
  - Commercial/LMR Coverage
- On Demand Temporary

Kansas modified its coverage objective by including:

- PSAP Call for Service Locations for 2014
- Statewide automotive crash data from 2009-2014
- Statewide fire calls from the National Fire Incident Reporting System
- Statewide Critical Infrastructure
- State and Federal Highways
- Population Density per square mile
- Addressable Structures
- Native American Tribal Lands

Kansas Submission Summary



2a. Objective: Identify the basic demographics of each public safety entity (PSE)	
Public Safety Entity (PSE) Name	*Agency or Organization Name*
Department	*Enter only if response applies to a specific department within the P*
Discipline	
Type	Local | County | State | Tribal | Federal | Other
Street Address	
City	
County	
State	
Zip Code	
# of Employees	*Estimate of total # of employees*
# of Full Time Employees	*Estimate of total # of full time employees*
# of Part Time Employees	*Estimate of total # of part time employees*
# of Volunteers	*Estimate of total # of volunteers*
# of Vehicles for Operations	*Estimate of total # of vehicles supporting operational personnel*
POC	*POC for Public Safety Entity*
Phone Number	*Phone number for Public Safety Entity*
Email Address	*Email address for Public Safety Entity*
Comments	*Provide any comments to supplement the above answers*
Date	*Date for source of data*

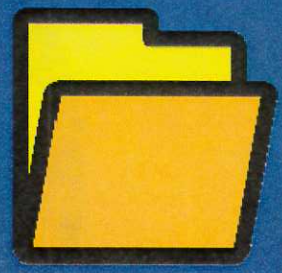
An answer of "unknown" should be allowed

663

Agency Surveys*

11,600+

Nationwide



17.4 MB

Submitted

15.1 GB

Nationwide

29,800+

State Public Safety Personnel Represented*

1.6 Million

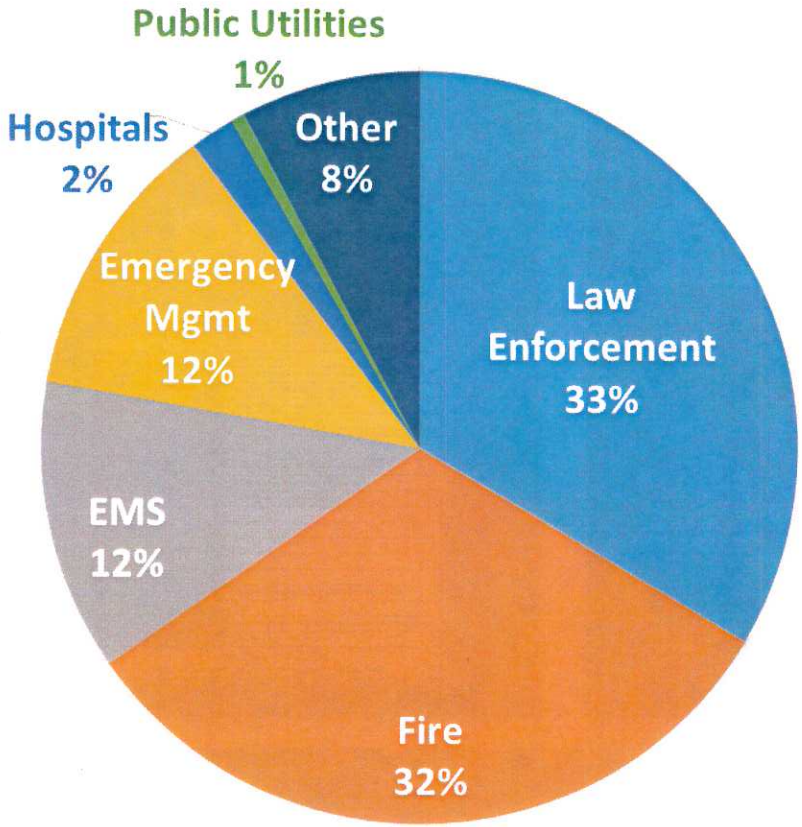
Nationwide

*As of updated submission received January 2016

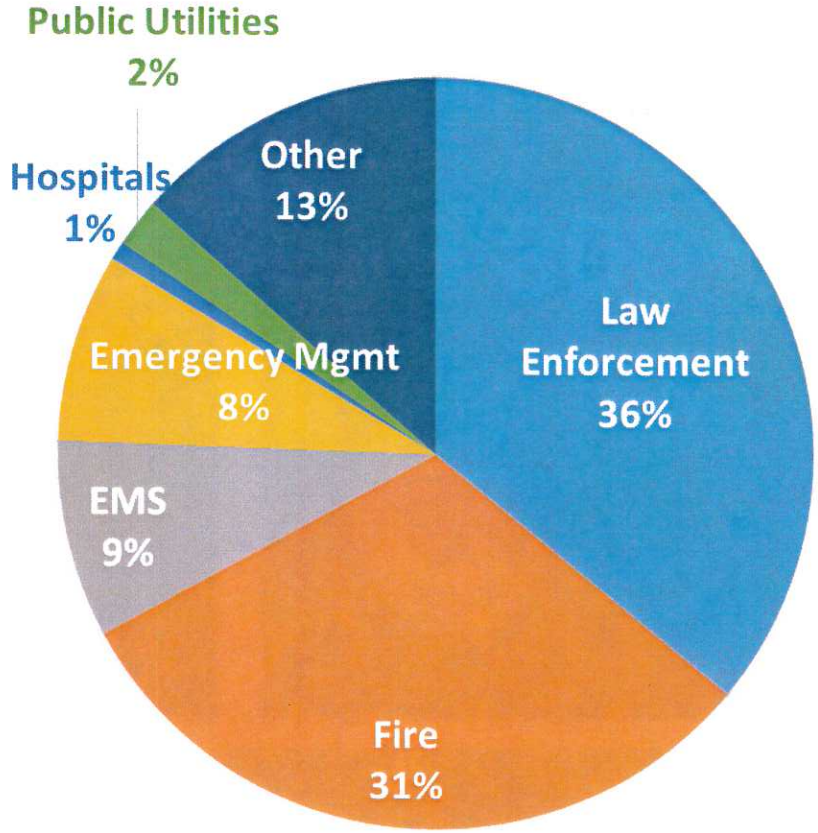
Who Responded to the Survey?

FirstNet®

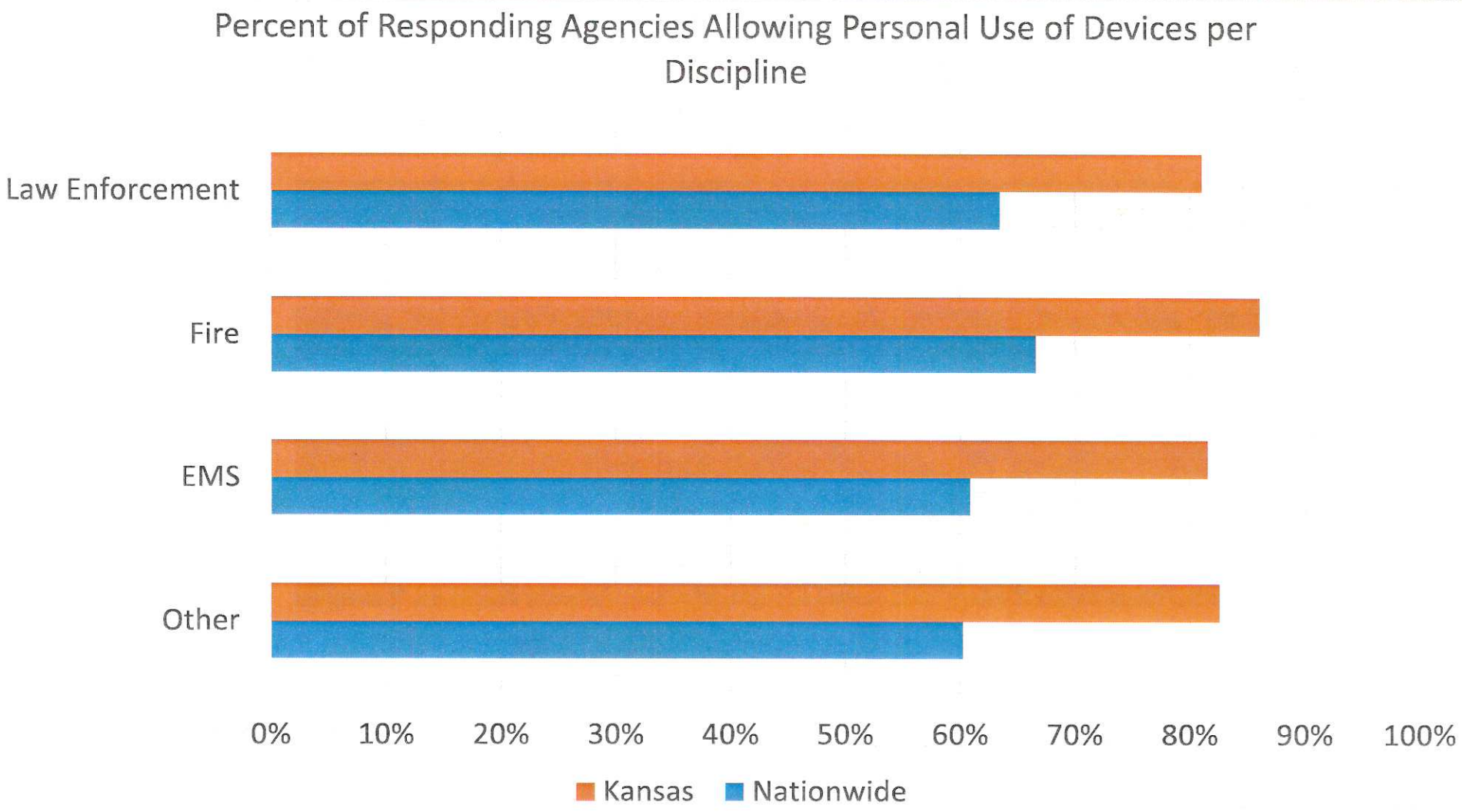
Kansas



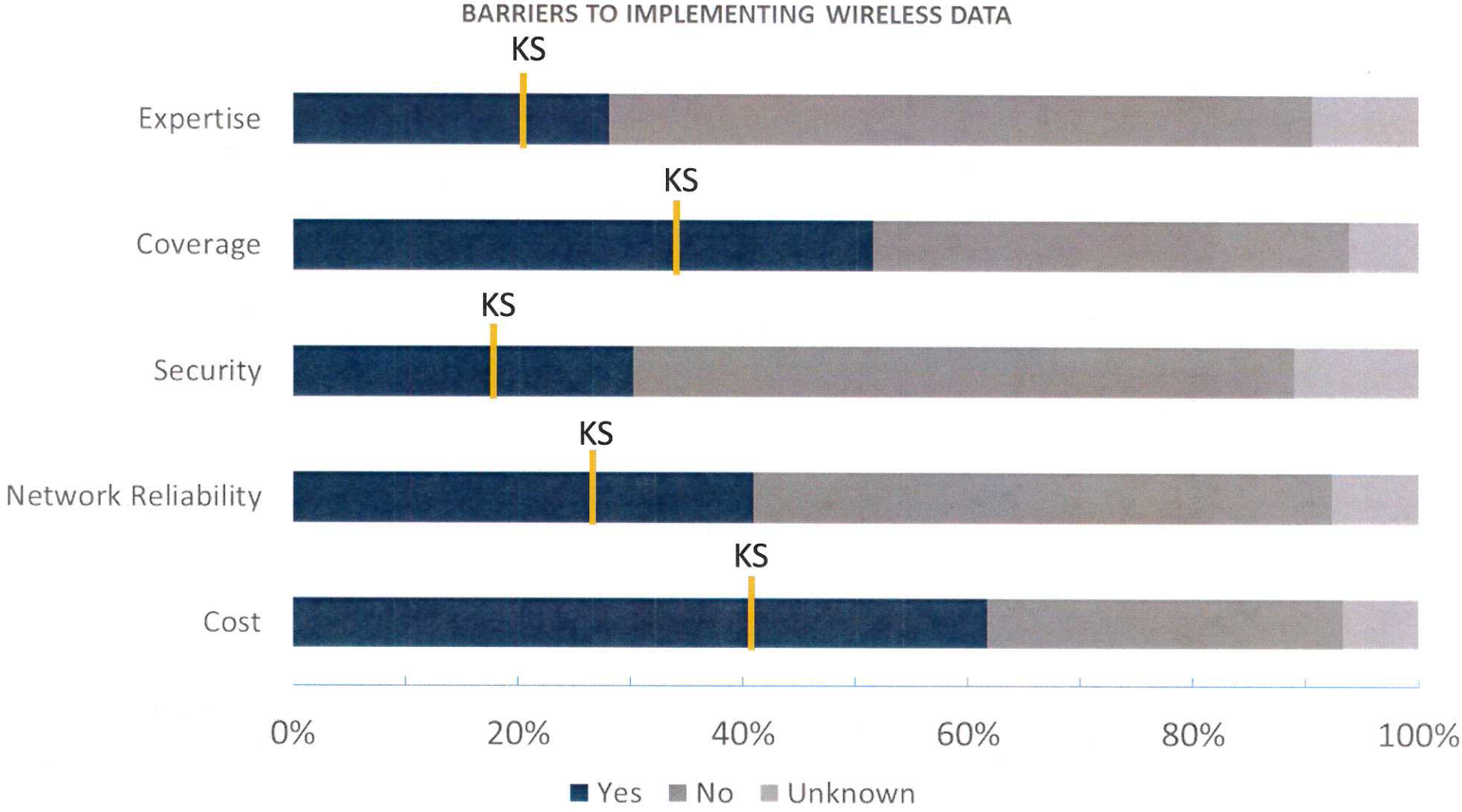
Nationwide



How Many Agencies Allow the Use of Personal Devices?



Barriers to Adopting Wireless Data per Survey Responses



How Much Does Public Safety Pay Today?

FirstNet®

50%

Of Nationwide Responding Public Safety Agencies Paid

<$50

For Voice and Data Services Per Device Per Month

75%

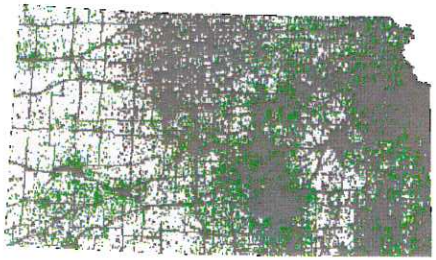
Of Nationwide Responding Public Safety Agencies Paid

<$65

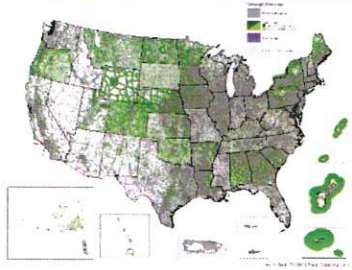
For Voice and Data Services Per Device Per Month

How Was State Data Used in the RFP?

Coverage Objectives



Nationwide Objective

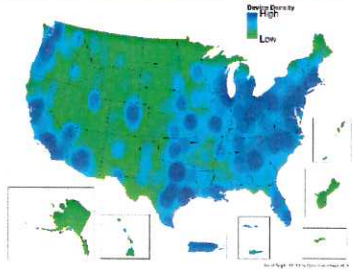


User Survey Data

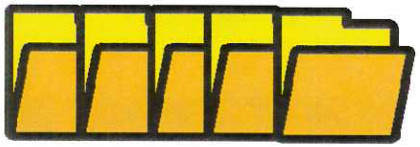
2c. Objective: Estimate the total number of eligible Public Safety Entities, associated personnel and devices within the State/Territory. Use surveys, interviews and samples to help estimate the totals.

Discipline Examples	Surveyed Data [Sampling]				Estimated Totals			
	Agencies	Personnel	Devices	Dev./User	Agencies	Personnel	Dev./User	Devices
Law Enforcement (Municipal Police, State Police, Sheriff, Highway Patrol)	200	24,000	30,000	1.2	1,000	80,000	1.2	96,000
Fire Service	150	1,000	800	0.8	800	40,000	0.8	40,000
Emergency Medical Services	50	500	750	1.5	200	20,000	1.5	30,000
Courts, Corrections and Security				No Entry				No Entry
Emergency Management				No Entry				No Entry
Facilities and Land Management				No Entry				No Entry
Highway and DOT				No Entry				No Entry
Hospitals and Medical Facilities				No Entry				No Entry
National Security/Intelligence				No Entry				No Entry
Public Administration and Support Services				No Entry				No Entry
Public Health				No Entry				No Entry
Public Safety Communications				No Entry				No Entry
Public Utilities (Electricity, Gas, Water, Telecom and Sewer)				No Entry				No Entry
Specialized Law Enforcement (Investigations, Intelligence, Cyber/Asset Protection, etc.)				No Entry				No Entry
Transportation Operations (Air, Pipeline, Rail, Sea and Waterway)				No Entry				No Entry
Other Governmental Agencies				No Entry				No Entry
Other Regulatory Agencies				No Entry				No Entry
Other Non-Specified				No Entry				No Entry
TOTAL	400	26,500	31,550	1.2	2,100	160,000	1.1	174,000

User, device and tonnage estimates informed capacity evaluation and total addressable market



Submission Files



RFP Reading Room

State of Kansas
Use Case

Response to the Bear Creek Fire

Highlighted Use Case

Vaughn Lorenson, Stanton County Emergency Management

On March 22, 2011, a significant grass fire flared in the Bear Creek area of Stanton County and consumed 69 acres of grassland. During the fire, there were 34 mile per hour winds with gusts up to 60 miles per hour. The fire started around 11:30 a.m. and burned for nearly 12 hours. It reignited six times during the firefighting effort. The response included 188 responders and 103 pieces of equipment from several counties within Kansas as well as from bordering counties of Colorado. The American Red Cross was also involved in the response, and schools and hospitals were on standby to evacuate if necessary. Local businesses pitched in to provide equipment and food, and 33 farmers from the surrounding areas brought in tractors, trucks, and water trailers in what turned into a full community response.

Initial Consultation Meeting
Date: June 17, 2015
Location: Topeka, Kansas
Attendees: 60
Use Case Presentations • **Bear Creek Fire:** Communications gaps in rural area and lack of situational awareness • **Coverage in Tribal Lands:** Coverage gaps and congestion around casino operations • **Special Events in Kansas City:** Network capacity issues around regional population swings for special events and daily commuters

Cell coverage is inconsistent in Stanton County and completely unavailable in many of the places public safety needs to respond - especially in mutual aid situations at the border with Colorado. During the fire, first responders lost all radio communication. Smoke may have been causing interference, and there was no cell service. With no reliable communications, the most pressing issue was the safety of first responders. At one point during the response, a fire truck was stuck down in the creek and there was no way to alert other responders.

After the fire, the Southwest Regional Council helped Stanton County purchase 800 MHz radios that can operate on the statewide system, the Kansas Statewide Interoperable Communication System. The county still has issues with radio and cell service throughout the county, however. During a recent high-speed chase in the county, an officer lost radio service and cell coverage. His agency did not know where he was for several minutes during an intense and dangerous situation.

Importance of Data Communications

With reliable cell and data service, first responders could have supplemented radio service and had interoperability with Colorado. Stanton shares two county lines with Colorado and responds there regularly. The availability of FirstNet would also eliminate dead spots and improve interoperability and situational awareness in a response that involved multiple departments and jurisdictions and some untraditional responders.